ADEQ Arizona Department of Environmental Quality

DRAFT TECHNICAL SUPPORT DOCUMENT

AIR QUALITY PERMIT NO. 66039
FREEPORT MCMORAN MIAMI, INC. - SMELTER

I. INTRODUCTION

This Class I renewal permit is being issued to Freeport McMoRan Miami Inc., the Permittee, for the continued operation of a copper smelter in Miami in Gila county, Arizona. This permit renews and supersedes Operating Permit No. 53592.

A. Company Information

Facility Name: Freeport McMoRan Miami Inc. (FMMI)

Mailing Address: P.O. Box 4444
Claypool, Arizona 85532

Facility Address: Hwy 60, North of Miami
Miami, Gila County, Arizona 85532

B. Attainment Classification

Miami area is currently designated as a non-attainment area for Particulate Matter less than 10 microns (PM_{10}) and SO_2 (1-hour, 75 ppb standard).

II. FACILITY DESCRIPTION

A. Material Handling and Bedding Plant

Copper concentrate is delivered to the bedding plant by truck and rail car. In the bedding plant, stockpiles of smelter feed are built up and prepared for feed to the IsaSmelt® (Isa) furnace. The metallurgical characteristics of each pile are determined, and the flux requirements are calculated. The concentrate is conveyed to bins, then to the blending belt where fluxes, reverts, and coal (optional) are blended with concentrates of copper and other metals, routed to a paddle mixer, and then to the Isa furnace. The option to direct the feed to through a pelletizer also exists.

Flux and reverts are transported by dump trucks that dump onto receiving stockpiles. Flux and reverts from the stockpiles are then routed through crushing and screening circuits, one for reverts and another for flux, to reduce the size of the material down to specification levels and then stored in individual storage bins. From the storage bins, these materials are then metered onto the blending belt that carries concentrate to the paddle mixer.

B. Smelter

The IsaSmelt® furnace is the primary smelting furnace. New metal bearing material (NMBM), fluxes, lime, reverts, and coal (optional) are fed, along with oxygen enriched air and fuel to the Isa furnace. In the IsaSmelt® process, heat is utilized from the partial

oxidation of sulfide charge, thus saving energy costs. The electric furnace receives the matte/slag mixture from Isa vessel and converter slag by ladle. Once the copper matte settles to the bottom of the electric furnace, the slag on the top of the bath is removed and hauled to slag storage area. Matte is tapped from the electric furnace into ladles and transported by cranes to four Hoboken converters. Blister copper from converters is transferred by ladles to either of the two anode furnaces for further oxidation of residual sulfides and refining to meet residual dissolved oxygen specifications for the off-site refinery. Anode copper is then cast into molds to make anodes for further refining.

The process off-gas from the Isa is routed through a waste heat boiler (WHB) where a portion of entrained dust settles out. The collected dust is returned to the bedding plant or reverts bin. The gases from the WHB are routed to an electrostatic precipitator (ESP). Dust from the ESP is collected and sent to electric furnace or reverts bin. The gases are routed to a double contact acid plant.

Process off-gas from electric furnace are cooled in an off-take duct with water sprays and then routed to the acid plant.

Process off-gas from converters is cooled by water sprays and combined with gases from the Isa vessel and electric furnace, and routed to the acid plant. These gases are converted in the acid plant to make sulfuric acid. The unconverted SO_2 is exhausted through the acid plant tail gas stack.

Emissions from the electric furnace matte tapping launders, furnace converter slag return launders, furnace slag tapping launders, and the Isa vessel matte tapping launders are collected by the vent fume system. These gases pass through a chemical scrubber and wet electrostatic precipitators (WESPs) and then exhaust through the vent fume stack.

Electrolytic Refinery

The cast anodes are transported to the electrolytic refinery at El Paso, TX or Miami (when operating). In the refinery, copper is separated from impurities by electrolysis. Metallic impurities settle at the bottom sludge of refinery tanks as a sludge. The sludge is removed and sold to recover precious metals.

Rod Plant

At the Rod Plant cathodes from various sources are melted in a gas-fired shaft furnace, and molded into copper rods using a continuous caster and rolling mill. The rod is brightened by cleaning with isopropyl alcohol, wax, coated onto the rod to prevent oxidation and coiled in preparation for shipment. Scrap copper is returned to the smelter.

III. COMPLIANCE HISTORY

There have been a total of 248 air quality inspections (247 file reviews and 7 facility on-site inspections) associated with this facility since 2012. Four air quality violations were identified for this facility as the result of these inspections. All these have been closed.

IV. FACILITY-WIDE EMISSIONS

The following tables provide summary of the facility-wide potential-to-emit (PTE).

TABLE 1: FACILITY-WIDE PTE

Pollutant	Current	Upon Project Start up
	Tons per year	
PM	598	506
PM_{10}	363	310
$PM_{2.5}$	282	196
SO_2	2537	644*
NO_X	316	265
CO	133.2	133.5
VOC	200.6	198
H_2SO_4	104	127
Pb	5.01	4.03

*The SO_2 PTE Facility Wide limit changes to 624 tons per year upon A.A.C R18-2-C1302 effective date

V. APPLICABLE REGULATIONS VERIFICATION

The Permittee has identified the applicable regulations that apply to each unit in the permit application. The following table summarizes the findings of the Department with respect to applicability or non-applicability of applicable regulations that apply to each unit.

TABLE 2: APPLICABLE REGULATIONS VERIFICATION

Unit ID	Control Equipment	Applicable Regulations	Verification
Material Handling and Bedding Plant	Baghouses for individual storage bins, water sprays	A.A.C. R18-2-702.B.3 A.A.C. R18-2-715	Standards of Performance for Existing Primary Copper Smelters A.A.C. R18-2-715 are applicable to any Copper Smelter process including the following "affected facilities": material handling and bedding plant. Until project start up, the particulate matter emission limits from Installation permit #1232 are retained in the Title V permit.
Process Gases from the IsaSmelt Furnace and Converters (Acid Plant Tail Gas Stack)	Acid Plant, and Chemical Scrubber for control of SO_2 emissions	40 CFR 60 Subpart P 40 CFR 63 Subpart QQQ	The IsaSmelt® furnace is an "affected facility" subject to NSPS Subpart P because constructed commenced after October 16, 1974. The National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart QQQ is applicable to any

Unit ID	Control Equipment	Applicable Regulations	Verification
			existing or new copper smelter that is a major source of HAP emissions.
		A.A.C. R18-2-715 A.A.C. R18-2-715.01	Particulate limits and Standards of Performance for Existing Primary Copper Smelters A.A.C. R18-2-715 and 715.01 are applicable to the smelter facility.
		A.A.C. R18-2-C1302	Once A.A.C. R-18-2-C1302 becomes applicable, standards from A.A.C. R-18-2-715 and-715.01 shall cease to apply. Additionally, the particulate matter, lead, and SO_2 emissions are subject to the emission standards from the installation permit #1232 - until project startup. . Also, NO_X emission limitation from the PSD permit revision #1000266 is retained.
		Regional Haze, 40 CFR 52.145 (m)	Requirements from Regional Haze, 40 CFR 52.145 (m) are applicable to the Electric Furnace and the batch Copper Converters.
Vent Fume Stack	Wet scrubber, Wet Electrostatic Precipitators (ESPs)	40 CFR 63 Subpart QQQ A.A.C. R18-2-715 A.A.C. R18-2-715.01	"Affected sources" under Subpart QQQ include tapping operations are subject to NESHAP 40 CFR 63 Subpart QQQ. Standards of Performance for Existing Primary Copper Smelters A.A.C. R18-2-715 and 715.01 are applicable to the smelter facility.
		A.A.C. R18-2-C1302	Additionally, the particulate matter, lead and SO_2 emissions are subject to the emission standards for the vent fume stack from installation permit #1232- until project startup. . Once A.A.C. R-18-2-C1302 becomes applicable, standards from A.A.C. R-18-2-715 and-715.01 shall cease to apply.
Smelter Fugitives		A.A.C. R18-2-702.B.3 and E A.A.C. R18-2-715 A.A.C. R18-2-715.01 40 CFR 63 Subpart QQQ	Opacity standard from A.A.C R18-2-702.B and E are applicable to emissions from the smelter building. Fugitive emissions from primary copper smelting operations are also subject to NESHAP 40 CFR 63 Subpart QQQ.

Unit ID	Control Equipment	Applicable Regulations	Verification
		A.A.C. R18-2-C1302	Once A.A.C. R-18-2-C1302 becomes applicable, standards from A.A.C. R-18-2-715 and-715.01 shall cease to apply.
Converters (not otherwise covered above)	N/A	40 CFR 61 Subpart O	The copper converters are subject to this standard for arsenic emissions under 40 CFR 61 Subpart O
Anode Furnaces and Utility Vessels	Steam Injection System	A.A.C. R18-2-702.B.3 and E	Opacity standard from A.A.C R18-2-702.B and E are applicable to emissions from the anode furnaces and utility vessels.
Change Room Boiler, Acid Plant Pre-heater, Rod Plant Thermal Breaker Heater	N/A	A.A.C. R18-2-724	The fossil-fuel fired industrial equipment boilers and heaters are subject to A.A.C. R18-2-724. These boilers/heaters are less than 10 MMBtu/hr each, and hence not subject to 40 CFR 60 subpart Dc.
Isa Auxiliary Boiler and Electrolytic Refinery Boilers	N/A	40 CFR 60 Subpart Dc	These boilers, each more than 10 MMBtu/hr and installed after the trigger date of June 9, 1989 are subject to 40 CFR 60 Subpart Dc.
Screening Machine		A.A.C R18-2-721 A.A.C R18-2-722 A.A.C. R18-2-702.B.3	A.A.C R18-2-721-Standards of Performance for Existing Nonferrous Metals Industry Sources, and A.A.C R18-2-722-Standards of Performance for Existing Gravel or Crushed Stone Processing Plants are applicable to screening machine.
Internal Combustion Engines Non-Emergency: 63 HP and 200 HP Emergency: 12, 27, 47, 67, 107, 134, 200, 402, 789, and 1150 HP. Non- Emergency: 173, 450, less than 500 (Two Engines) HP	None	A.A.C. R18-2-719 New Source Performance Standards, NSPS Subpart IIII	Engines constructed prior to year 2006 are subject to Existing Stationary Rotating Machinery standards under A.A.C. R18-2-719. The engines constructed after 2006 are subject to NSPS 40 CFR 60 Subpart IIII. New CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions meet the requirements of 40 CFR 63 Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII. The National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ is applicable to reciprocating internal combustion

Unit ID	Control Equipment	Applicable Regulations	Verification
		NESHAP Subpart ZZZZ	engines (RICE) located at major and area sources of HAPs. All engines except emergency ICE of 1150 HP and 789 HP meet the requirements of this part by meeting requirements of NSPS Subpart IIII. The 1150 HP and 789 HP emergency engines must also meet initial notification requirements of Subpart ZZZZ.
Spark Ignition Internal Combustion Engine Emergency: 172 HP, two engines	None	New Source Performance Standards (NSPS) Subpart JJJJ NESHAP Subpart ZZZZ	NSPS Subpart JJJJ is applicable since the engine is manufactured after the year 2008. The National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ is applicable to reciprocating internal combustion engines (RICE) located at major and area sources of HAPs. Requirements of NESHAP Subpart ZZZZ for new emergency SI RICE are met by meeting the requirements of NSPS Subpart JJJJ.
Gasoline Storage Tanks	None	A.A.C. R18-2-710	The gasoline storage tank is subject to the requirements under A.A.C. R18-2-710. NSPS Subpart Kb is not applicable as the capacity of gasoline storage tank is less than 20,000 gallons.
Electrolytic refining and Anode slime processing operations Rod Plant Shaft Furnace, Thermal Breaker, Cooling Towers, Misc. Storage Tanks		A.A.C. R18-2-730 A.A.C. R18-2-702.B.3	These units are not covered by any specific existing source standard. They are, hence, regulated as unclassified sources under A.A.C. R18-2-730. The units are subject to opacity limits under A.A.C. R18-2-702.B.3.
Crushing & Screening (Metallic Material)	Water and other reasonable precautions	A.A.C. R18-2-702.B.3, 702,C and -721	The crushers and screen handling nonferrous metallic materials are subject to the requirements under A.A.C. R18-2-721.
Crushing & Screening -(Non Metallic Material)	Water and other reasonable precautions	NSPS Subpart OOO	NSPS Subpart OOO is applicable to non-metallic mineral processing including crushers and screens manufactured after August 31, 1983. These equipment are manufactured in

Unit ID	Control Equipment	Applicable Regulations	Verification
			the year 2005 and 2007, therefore NSPS Subpart OOO is applicable.
Fugitive Dust Sources	Water and other reasonable precautions	A.A.C. Article 6, A.A.C. R18-2-702.B.3	These standards are applicable to all fugitive dust sources at the facility.
Mobile Sources	Water Sprays/Water Truck for dust control N/A	A.A.C. R18-2 Article 8	This Article is applicable to off-road mobile sources, which either move while emitting air pollutants or are frequently moved during the course of their utilization.
Other Periodic Activities	Various	A.A.C. R18-2-727, A.A.C. R18-2-726, A.A.C. R18-2-1101.A.8	This section deals with activities such as sandblasting, spray painting, demolition/renovation asbestos control, and gaseous or odorous materials handling.

VI. PREVIOUS PERMIT CONDITIONS

A. Previous Permits

The table below lists previous permits held by this facility.

TABLE 3: PREVIOUS PERMITS

Permit Number	Date Issued	Application Basis
53592	November 26, 2012	Operating Permit
57278	December 10, 2012	Facility Change Without Revision
57415	January 8, 2013	Facility Change Without Revision
57717	April 1, 2013	Administrative Amendment
57738	July 3, 2013	Minor Permit Revision
57801	August 20, 2013	Minor Permit Revision
57977	May 16, 2013	Administrative Amendment
58193	June 4, 2013	Facility Change Without Revision
58409	July 21, 2014	Significant Permit Revision
58758	May 15, 2014	Minor Permit Revision
58836	November 21, 2013	Minor Permit Revision
59368	December 26, 2013	Facility Change Without Revision
59489	January 21, 2014	Facility Change Without Revision
61088	September 2, 2014	Administrative Amendment

Permit Number	Date Issued	Application Basis
61717	May 4, 2015	Minor Permit Revision
62674	August 28, 2015	Minor Permit Revision
64322	July 5, 2016	Facility Change Without Revision
64506	August 12, 2016	Facility Change Without Revision
65962	June 23, 2017	Minor Permit Revision
65972	May 11, 2017	Facility Change Without Revision

B. Previous Permit Conditions

This Renewal Permit No. 66039 is for the continued operation of this facility. Table 4 below illustrates if a section in Permit No. 53592 and revisions thereof was revised or deleted.

TABLE 4: PERMIT NO. 66039

Condition #, Permit No. 53592 as amended by MPR #65962	Determination		Comments
	Deleted	Revised	
Attachment "A"		x	This Attachment has been revised and the most recent Attachment "A" is used for this permit.
Attachment "B"			
II.B.1		x	This condition for Combined Emissions Limitation for Smelter Process- SO_2 revised by adding requirements from A.A.C. R 18-2-C1302 (AZ SIP for SO_2)
II.B.2		x	This condition for Combined Emissions Limitation for Smelter Process- NO_x revised by adding requirements from Regional Haze Rule, 40 CFR 52.145(m)
X.B through X.G			These Conditions for General Provisions for CMS shall no longer apply and will be replaced by Condition X.H through J upon the effective date of A.A.C. R 18-2-C1302 (AZ SIP for SO_2).
XXV		x	This Condition has been renumbered as Condition XIV.
XXV.C	x		This Condition for Compliance Dates deleted since already achieved.
XXV.D.1	x		This Condition for Initial Tune-ups deleted since already completed.
XXV.D.2		x	This Condition for Subsequent Tune-up revised as Boiler Tune up and renumbered as Condition XIV.C.1 and 2.D

Condition #, Permit No. 53592 as amended by MPR #65962	Determination		Comments
	Deleted	Revised	
XXV.D.3	x		This Condition for One-Time Energy Assessment deleted since completed for boilers permitted under this permit.
XXV.D.4		x	This Condition for Tune-up procedure renumbered as Condition XIV.C.3.
XXV.D.5	x		This Condition for One-Time Energy Assessment Procedure deleted since completed for boilers permitted under this permit.
XXV.D.6		x	This Condition for Notification and Reporting Requirements renumbered as Condition XIV.C.4.
XXV.D.7		x	This Condition for Recordkeeping Requirements renumbered as Condition XIV.C.5.
XIV		x	This Condition for Screening Machine renumbered as Condition XV.
XV		x	This Condition for Electrolytic Refinery Operations renumbered as Condition XVI.
XVI		x	This Condition for Rod Plant renumbered as Condition XVII.
XVII		x	This Condition for Miscellaneous Storage Tanks renumbered as Condition XVIII.
XVIII		x	This Condition for Gasoline Storage Tanks renumbered as Condition XIX.
XIX		x	This Condition for Engines renumbered as Condition renamed as Internal Combustion Engines and renumbered as Condition XX.
XIX.C		x	This Condition for RICE subject to NSPS JJJJ has been revised for the engines at the facility.
XX		x	This Condition for Cooling Towers renumbered as Condition XXI.
XXI		x	This Condition for Fugitive Dust Requirements renumbered as Condition XXIII.
XXI.B.8	x		This Condition for mineral tailings deleted from this permit since covered in the mine Permit for FMMI.
XXII		x	This Condition for Mobile Source Requirements renumbered as Condition XXIV.
XXIII		x	This Condition for Other Periodic Activities renumbered as Condition XXV.

Condition #, Permit No. 53592 as amended by MPR #65962	Determination		Comments
	Deleted	Revised	
XXIV	x	x	This Condition for Ambient Monitoring Requirements deleted.

VII. MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

A. Feed to smelter

The Permittee is required to limit the feed of NMBM to the Isa and Electric furnace to 850,000 tons per year until Project startup. Upon Project startup, the Permittee will not feed more than 1,000,000 tons of NMBM to the Isa and Electric furnace. This will be calculated as a rolling twelve month sum. The Permittee is required to maintain records of daily, monthly, and rolling twelve month totals of NMBM.

B. Combined Emission Limitations for Smelter Process

1. SO_2

The Permittee will install, calibrate, maintain, and operate continuous monitoring systems to monitor and record SO_2 concentrations and stack gas volumetric flow rates at the acid plant tail gas stack, vent fume stack, aisle scrubber stack, and the bypass stack.

The Permittee will install, calibrate, maintain, and operate a continuous monitoring system to monitor and record fugitive SO_2 concentrations at the Miami Smelter roofline.

Upon the effective date of A.A.C. R18-2-C1302, the Permittee will maintain the required records as specified in the capture system and control device operations and maintenance plan and the roofline fugitive emissions monitoring plan required for at least five years.

Upon the effective date of A.A.C. R18-2-C1302, the Permittee will, within 30 days after the end of each calendar quarter, submit a data assessment report to the Director in accordance with 40 CFR Part 60, Appendix F, Procedure 1 for the continuous monitoring systems and submit an excess emissions and monitoring systems performance report and-or summary report form in accordance with 40 CFR § 60.7(c) to the Director semiannually for the continuous monitoring systems.

2. NO_x

The Permittee will maintain records of daily natural gas consumption in each batch copper converter and all calculations performed to demonstrate compliance with the applicable NO_x limit.

C. Copper Converter Capture System

For each operating limit established under the capture system operation and maintenance plan, the Permittee will install, operate, and maintain an appropriate monitoring device according to the requirements in 40 CFR 63.1452(a)(1) though (6) to measure and record the operating limit value or setting at all times the required capture system is operating. Dampers that are manually set and remain in the same position at all times the capture system is operating are exempted from these monitoring requirements.

No later than January 1, 2018, the Permittee will maintain the data from the continuous monitoring system including the date, place, and time of sampling or measurement; parameters sampled or measured and results, records of quality assurance and quality control activities for the CMS, including, but not limited to, any records required by 40 CFR part 60, appendix F, Procedure 1, records of all major maintenance activities conducted on emission units, air pollution control equipment, and the CMS; records of all monitoring, records of daily sulfuric acid production in tons per day of pure, anhydrous sulfuric acid if the owner/operator chooses to use the alternative compliance determination method, records of daily alkali consumption in tons per day of pure, anhydrous alkali if the owner/operator chooses to use the alternative compliance determination method, records of planned and unplanned bypass events and calculations used to determine emissions from bypass events if the owner/operator chooses to use the alternative compliance determination method, and records of daily natural gas consumption in each converter and all calculations performed to demonstrate compliance.

All reports for the copper converter capture system will be submitted by the Permittee to the Director, Enforcement Division (Mail Code ENF-2-1), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105-3901. All reports required under this section will be submitted within 30 days after the applicable compliance date of January 1, 2018 and at least semiannually thereafter, within 30 days after the end of a semiannual period. The Permittee will submit reports more frequently than semiannually for the purposes of synchronizing reports required under this section with other reporting requirements, such as the title V monitoring report required by 40 CFR 70.6(a)(3)(iii)(A), but at no point shall the duration of a semiannual period exceed six months.

D. Opacity

1. The Permittee will conduct bi-weekly monitoring of opacity from the stacks associated with material handling and bedding plant, tail gas stack, vent fume stack, smelter building, anode furnaces and utility vessels building, screening machine, anode slimes dryer, electrolytic refinery, rod plant shaft furnace and thermal breaker stacks; crushing and screening plants, and fugitive dust sources.

2. The Permittee will conduct monthly monitoring of opacity from the stacks associated with boilers and heaters, rod plant thermal breaker heater, and diesel engines

3. The Permittee will conduct quarterly monitoring of opacity from the cooling towers.

E. Particulate Matter

The Permittee will operate and maintain continuous parametric monitoring system to monitor operating parameters for wet electrostatic precipitators to minimize particulate

matter emissions from the vent fume stack.

F. Sulfur Dioxide

1. The Permittee will operate continuous monitoring system (CMS) on the tail gas stack, vent fume stack, aisle scrubber stack, bypass stack, and roofline monitoring systems to monitor sulfur dioxide emissions.

2. Until the effective date of A.A.C. R18-2-C1302, the Permittee will perform monthly material balance for determining facility-wide sulfur dioxide emissions. The Permittee must report average monthly emission, annual average emissions and number of 3-hour emission averages that exceeded the applicable emission levels.

3. The Permittee will submit a monthly report of all periods when the valve bypassing the sulfur removal equipment was operated.

4. The Permittee will calibrate continuous monitoring system (CMS) for SO_2 and gas volumetric flow measurement for tail gas stack, vent fume stack, aisle scrubber stack, bypass stack, and roofline monitoring system in accordance with the schedule identified in the permit.

G. **Arsenic**

The Permittee will compute 12-month average arsenic charging rate in pounds per hour every month and maintain records of these calculations. The Permittee will submit annual report of monthly computations of annual arsenic charging rates.

VIII. PERFORMANCE TESTING REQUIREMENTS

A. The Permittee will conduct EPA Reference Method 5 performance tests on two representative stacks from the concentrate, flux, revert, and coal bins in the first year of the permit term to show compliance with the particulate matter emission limits.

B. The Permittee will conduct semi-annual performance tests for particulate matter emissions from the tail gas stack and vent fume stack to demonstrate compliance with 40 CFR 63 Subpart QQQ emission limitations.

C. The Permittee will conduct annual performance tests for particulate matter emissions from the vent fume stack and acid plant tail gas stack and upon project startup the aisle scrubber and roofline monitor to demonstrate compliance with the hourly and annual emission limitations.

D. The Permittee will conduct annual performance tests for lead emissions from the vent fume stack and acid plant tail gas stack and upon project startup the aisle scrubber and roofline monitor to demonstrate compliance with the hourly and annual emission limitations.

E. Until project startup, the Permittee will conduct semi-annual performance test for nitrogen oxide emissions from the acid plant tail gas stack to demonstrate compliance with the hourly and annual emission limitations. After project startup the Permittee will comply with Section VIII of the permit conditions.

F. The Permittee will conduct performance test for nitrogen oxide emissions from

IsaSmelt® Auxiliary Boiler in the first year of the permit term to show compliance with the emission limit.

G. Until project startup, the Permittee will conduct annual performance tests for sulfur dioxide emissions from the vent fume stack and acid plant tail gas stack and upon project startup the aisle scrubber and roofline monitor to demonstrate compliance with the hourly and annual emission limitations. After project startup the Permittee will comply with Section VIII of the permit conditions.

IX. COMPLIANCE ASSURANCE MONITORING (CAM)

The only pollutant-specific emission units that use a control device to achieve compliance and have potential pre-control emissions greater than 100 tons per year are the smelter electric furnace, Isa vessel, converters, and anode furnace which generate sulfur dioxide, particulate matter, and nitrogen oxides. The process gasses from the Isa vessel, converters and electric furnace pass through the acid plant before being exhausted through the acid plant tail scrubber and stack to atmosphere. The collected fugitives from the electric furnace and ISA tapping pass through a scrubber and wet electrostatic precipitator before being exhausted through the vent fume stack to atmosphere. The converters fugitives and anode furnace fugitives exhaust to the Aisle scrubber.

The sulfur dioxide emissions from the three stacks are monitored by CEMS. Thus, these stacks are exempt from the CAM requirements (40 CFR 64.2(b)(vi)).

Emissions of particulate matter from the vent fume stack and tail stack particulate are subject to Maximum Available Control Technology (MACT) standards proposed after November 15, 1990, and hence, are exempt from CAM requirements (40 CFR 64.2(b)(i)).

Particulate matter emissions from the anode furnace are controlled by a baghouse. The baghouse does not meet any of the CAM exemptions. Therefore, the permit contains a CAM plan for particulate emissions from the anode furnace baghouse.

No control device is utilized to control NO_x emissions in the tail gas. Hence, CAM requirements are not applicable for NO_x emissions (40 CFR 64.2(a)(2).

X. LIST OF ABBREVIATIONS

A.A.C. ..... Arizona Administrative Code
ADEQ ..... Arizona Department of Environmental Quality
As ..... Arsenic
CAM ..... Compliance Assurance Monitoring
CMS ..... Continuous Monitoring System
CFR ..... Code of Federal Regulations
CO ..... Carbon monoxide
HAP ..... Hazardous Air Pollutant
HP ..... Horsepower
NO_x ..... Nitrogen Oxide
NOV ..... Notice of Violation
NESHAPS ..... National Emission standards for Hazardous Air Pollutants
NSPS ..... New Source Performance Standards
Pb ..... Lead
PM_{10} ..... Particulate Matter Nominally less than 10 Micrometers
PTE ..... Potential-to-Emit
SO_2 ..... Sulfur Dioxide

TPY ..... Tons per Year
VOC ..... Volatile Organic Compound
WESP ..... Wet Electrostatic Precipitator